cc: Leslie
Incoming
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State of Utah

Department of Environmental Quality

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DIVISION OF WATER QUALITY
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Lieutenant Governor

March 14, 2008

Mr. Thomas W. Batchell
Crown Asphalt Ridge, LLC
1245 East Brickyard Road
Brickyard Tower, Suite 110
Salt Lake City, UT 84106

Subject: Pilot Plant for Tar Sands Bitumen Extraction
Asphalt Ridge Mine, Uintah County, Utah
Ground Water Discharge Permit-By-Rule

Dear Mr. Batchell:

The Division of Water Quality (DWQ) has reviewed the February 27, 2008 Crown Asphalt Ridge, LLC (CAR) proposal to conduct a pilot project to evaluate extraction of bitumen from tar sands at the CAR mine site in Sections 30 and 31 of T4S, R21E, SLBM, Uintah County. According to the proposal, CAR will test a proprietary process using volatile organic solvents to extract hydrocarbons from tar sands for a period of up to 90 days. Although the solvents have been identified to DWQ, this information will be kept confidential as requested by CAR, and will not be identified in documents that are accessible to the general public. CAR predicts the pilot test will produce about 20,690 cubic yards of processed tar sand tailings. As part of the test, CAR will characterize the tailings to determine an appropriate strategy for tailings disposal if the extraction operation goes into full production.

Below are several relevant factors for determining whether the proposed pilot project will have a *de minimis* effect on ground water quality or beneficial uses of ground water resources.

1. Bitumen will be extracted from crushed tar sand ore within an enclosed process plant building. Solvent will be recovered from the bitumen and processed sand tailings to the greatest extent possible, and recycled back to the process.

2. A relatively small quantity of processed tar sand tailings will be generated by this pilot project. Tailings will be stored on an asphalt liner until they have been characterized and evaluated for their potential to affect ground water quality.

3. The solvents to be used in this pilot project are highly volatile and nearly insoluble in water. The dry climate of this area coupled with the high volatility of the solvent will likely result in evaporation of any residual solvent left in the tailings before having the opportunity to migrate to ground water.

4. Bedrock at the site consists of sandstones and shales of the Duchesne River Formation and Mesaverde Group, and these geologic formations dip to the southwest, away from alluvial aquifers in the nearby Ashley Valley.

Considering the factors described above, the proposed pilot project for extracting bitumen from tar sands should have a *de minimis* potential effect on ground water quality and qualifies for ground water discharge permit-by-rule under UAC R317-6-6.2A(25). However, if any of these factors change because of changes in your operation or from better knowledge of site conditions, this determination may not apply and you should immediately inform DWQ of the changes.

In its letter to DWQ dated February 27, 2008, CAR proposes to analyze the processed tailings using the following EPA analytical methods:

- BTEXN (EPA 8021B/8260B),
- TPH-Diesel Range Organics (EPA 8015B/3545),
- TRPH (EPA 1664-SGT),
- SPLP Volatiles (EPA GC/MS 8260B),
- SPLP Semi-volatiles (EPA 8270C/3510C),
- TDS (EPA 160.1), and
- Oil and Grease (EPA 1664A).

To present a worst-case evaluation of tailings characteristics, DWQ requests that the above analyses be done on samples representative of the interior of tailings piles that have been stacked in the normal manner anticipated in future mining operations, and that the samples be protected from volatilization before analysis. The SPLP analyses should specifically include the solvents used for bitumen extraction.

This permit-by-rule determination applies only to the pilot project. For future full-scale production, please submit a ground water discharge permit application, containing a more complete analysis of potential ground water impacts from the operation. It is possible that such a production operation may also qualify for permit-by rule status. Please contact Mark Novak of this office at (801) 538-6518 with any questions or for any additional information needed for a ground water discharge permit application.

Sincerely,

Rob Herbert, P.G., Manager
Ground Water Protection Section

cc: Paul Baker, DOGM
Sandy Wingert, DWQ/TMDL
Tri-County Health Department
Scott Hacking, DEQ Tri-County District Engineer

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